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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,813	04/18/2005	Takashi Nakai	09864/0202607-US0	3685

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EXAMINER	
BELL, WILLIAM P	

ART UNIT	PAPER NUMBER
4151	

MAIL DATE	DELIVERY MODE
09/17/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,813	NAKAI ET AL.	
	Examiner	Art Unit	
	WILLIAM P. BELL	4151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-21* is/are pending in the application.

4a) Of the above claim(s) *20 and 21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11, 13-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :4/18/2005,6/30/2005,5/2/2007,10/24/2007.

DETAILED ACTION

Election/Restrictions

1. Claims 20-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on September 2, 2008.

2. Applicant's election with traverse of claims 1-12 and 13-19 in the reply filed on September 2, 2008, is acknowledged. The traversal is on the ground(s) that there is no undue burden of search. This is not found persuasive because a serious burden on the examiner may be *prima facie* shown by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02. Claims 1-11 and 12-19 are drawn to a method of forming a compact from a powder in class 264/109. Claims 20-21 are drawn to an apparatus for forming a compact from a powder in class 425/406. Note that the search for one is not required for the other.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

3. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states,

"the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

4. The disclosure is objected to because of the following informalities: units given for average particle diameter are incorrectly specified as ",,m" (see Page 6, Lines 25 and 27).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 3, 13, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo (European Patent Application EP-1170075), and further in view of Voss (U. S. Patent No. 4,707,309). Regarding claim 1, Kondo teaches a method for forming a compact from a powder ("method of forming a powder compact"; see [0012]) comprising the steps of applying a lubricant to a forming portion of a mold body ("when the higher fatty acid lubricant is applied to an inner surface of a die, a 10 to 20 times dilution of the aqueous solution treated by the ball-mill pulverization process is used for application"; see [0050]), evaporating the solution to form a crystallized layer

on a surface of the forming portion ("water in which the higher fatty acid lubricant is dispersed is instantly evaporated and a uniform lubricant coating can be formed on the inner die surface"; see [0055]), filling the forming portion of the mold body with a raw powder ("metal powder is filled into the die"; see [0058]), and fitting upper and lower punches into the forming portion("the die used in this application step can be an ordinary die for forming a compact in the field of powder metallurgy"; see [0054]; it is well known to one of skill in the art that such a die uses upper and lower punches and that inserting these punches into the forming portion of the die is a prerequisite step for applying compaction pressure to the powder). Kondo does not teach that the lubricant is dissolved in a solution prior to application to the forming portion of a mold body, but rather that it is pulverized and suspended in a solution. In analogous art, specifically the lubrication of compression tools, Voss teaches a method wherein a lubricant is applied to the forming portion of a mold body in a solution form ("the lubricant liquid generally contains from about 5 to 50% by weight of lubricant, the remainder being a solvent"; see Column 4, Lines 16-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the method of Kondo with the lubricant solution taught by Voss for the benefit of eliminating the pulverization process required in Kondo's method, thereby optimizing the method.

Regarding claim 3, Kondo further teaches a method wherein the lubricant is an organic-acid-based metal salt ("lithium stearate"; see [0045]).

Regarding claim 13, Kondo further teaches a method wherein said solution has said lubricant completely dissolved in water ("aqueous solution"; see [0050]) to have a

concentration greater than or equal to a concentration at which the thickness of a crystallized layer is formed by one molecule of the lubricant ("a monomolecular film"; see [0015]), but less than a concentration of a saturated solution (by definition, the concentration of a solution must be less than or equal to that of a saturated solution).

Regarding claim 16, Kondo further teaches a method wherein a defoaming agent is added into the lubricant ("a small amount of antifoaming agent, for example, silicon-based antifoaming agent can be added"; see [0047]).

Regarding claims 17 and 18, the combination of Kondo and Voss remains as applied above. Voss further teaches "particularly suitable solvents and suspension agents include water and alcohols such as ethanol, isopropanol, or mixtures thereof" (see Column 4, Lines 32-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the solvents and mixtures of solvents as taught by Voss in the method taught by Kondo for the benefit of dissolving lubricants which are insoluble in water

Regarding claim 19, Kondo further teaches a method wherein the lubricant is lithium stearate, which contains no halogen element.

7. Claims 2, 5, 6, 7, 10, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kondo and Voss as applied to claims 1, 3 and 13 above, and further in view of Murata (International Application No. PCT/US97/10108). Regarding claims 2 and 5, neither Kondo nor Voss teach the use of sulfate compounds as lubricants. In analogous art, specifically the compaction of metal powders, Murata teaches the use of sodium sulfate and potassium sulfate (see Page 4, Line 31) in a

mold lubricant formulation, sodium and potassium sulfate being metal salts of sulfuric acid, an oxo acid. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the lubricant taught by Murata with the method of Kondo as modified by Voss for the benefit of providing lubricants selected and optimized for specific desired powders as claimed, to be compacted. Regarding claim 6, Murata teaches the use of potassium tetraborate and Borax (sodium tetraborate) (see Page 4, Lines 33-34) in a mold lubricant formulation. Regarding claim 7, Murata teaches the use of sodium silicate and potassium silicate (see Page 4, Line32) in a mold lubricant formulation. Regarding claim 10, Murata teaches the use of sodium nitrate and potassium nitrate (see Page 4, Line 33) in a mold lubricant formulation. Regarding claim 14, Murata teaches the use of sodium and potassium salts as noted above. It is well known to one of skill in the art that the selection of lubricants, mold releases, and other surface active agents is highly dependent on the specific material being formed in the process as demonstrated by Murata. Therefore, it would have been obvious to one of ordinary skill at the time of the invention to have combined the lubricants taught by Murata with the method of Kondo as modified by Voss for the benefit of providing lubricants selected and optimized for specific desired powders as claimed to be compacted.

Regarding claim 15, the combination of Kondo and Voss with Murata remains as applied above. Kondo and Voss do not teach the use of an antiseptic in the lubricant solution. Murata teaches a lubricant formulation which "may also contain ... a preservative" (see Page 7, Lines 20-22). It is reasonable to interpret a preservative as

equivalent to an antiseptic in that both serve to prevent growth of unwanted organisms such as molds, bacteria, etc. It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the method of Kondo and Voss with the preservative taught by Murata for the benefit of providing a stable solution usable for long periods of time.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kondo and Voss as applied to claim 3 above, and further in view of Holinksi (U. S. Patent 5,445,748). Kondo and Voss do not teach the use of potassium tungstate or sodium tungstate as lubricants. In analogous art, specifically lubrication of metal surfaces, Holinski discloses the use of potassium tungstate as metal lubricant (see Column 1, Line 45). It is well known to one of skill in the art that the selection of lubricants, mold releases, and other surface active agents is highly dependent on the specific material being formed in the process. Therefore, it would have been obvious to one of ordinary skill at the time of the invention to have combined the lubricants taught by Holinksi with the method of Kondo as modified by Voss for the benefit of providing lubricants selected and optimized for specific powders to be compacted.

9. Claims 4, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kondo and Voss as applied to claim 3 above, and further in view of Lemmerman (U. S. Patent No. 1,967, 830). Regarding claim 4, Kondo and Voss do not teach the use of any phosphate compounds as lubricants. In analogous art, Lemmerman teaches the use of trisodium phosphate (see Line 62) as a lubricant. Therefore, it would have been obvious to one of ordinary skill at the time of the invention

to have combined the lubricants taught by Lemmerman with the method of Kondo as modified by Voss for the benefit of providing the claimed lubricant selected and optimized for the desired specific powders to be compacted, as such would yield an equivalent lubricating effect. Regarding claim 9, Lemmerman teaches the use of sodium acetate (see Line 70) as a lubricant. Regarding claim 11, Lemmerman teaches the use of sodium carbonate (see Line 69) as a lubricant. It is well known to one of skill in the art that the selection of lubricants, mold releases, and other surface active agents is highly dependent on the specific material being formed in the process. Therefore, it would have been obvious to one of ordinary skill at the time of the invention to have combined the lubricants taught by Murata with the method of Kondo as modified by Voss for the benefit of providing lubricants selected and optimized for specific powders to be compacted.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-11 and 13-19 are provisionally rejected on the ground of nonstatutory double patenting over claims 1-11 and 13-19 of copending Application No. 10/598,413. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows in the table below. Note

that only claim 1 is detailed in this table, as the remaining claims (2-11 and 13-19) are word-for-word identical in the two applications

Instant Application	**Application 10/598,413**
Claim 1. A method for forming a compact from a powder, comprising the steps of: applying a solution obtained by dissolving a lubricant in a solvent to a forming portion of a mold body; evaporating the solution to form a crystallized layer on a surface of the forming portion; filling the forming portion of the mold body with a raw powder; and fitting upper and lower punches into the forming portion.	Claim 1. A method for **forming a powder molding product** by filling a molding portion formed in a mold body with a raw powder and then fitting punches into the molding portion, comprising the steps of: **applying an aqueous solution obtained by dissolving a water soluble lubricant having at least 3 g of solubility for 100 g of water at 20°C in water** to the molding portion prior to filing the molding portion with a raw powder, and **evaporating the aqueous solution to form a crystallized layer on the surface of the mold portion.**

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the steps as indicated in claim 1 of the instant US application since the alteration of the cited limitations would not have changed the process as manipulatively claimed.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM P. BELL whose telephone number is

(571)270-7067. The examiner can normally be reached on Monday - Thursday, 7:30 am - 5:00 pm; Alternating Fridays, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on 571-272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

wpb

/Angela Ortiz/
Supervisory Patent Examiner, Art Unit 4151